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A Newsletter for the flora of New Mexico, from the Range Science Herbarium and Cooperative Extension Service, College of Agricultural, Consumer, and Environmental Sciences, New Mexico State University.

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Plant Distribution Reports

New records and significant distribution reports for New Mexico plants should be documented by complete collection information and disposition of a specimen (herbarium). Exotic taxa are indicated by an asterisk (*), endemic taxa by a cross (+). Comments [in brackets] are the editor's.

— Jim McGrath [20 Robin Court, Edgewood, NM]
Rosa obtusifolia Desvauz (Rosaceae, round-leaf rose): San Miguel County: Lime Canyon, about 500 ft south of Montezuma below Peterson Reservoir, edge of old paved highway, population in general area of Lime Canyon contains arching stems to 3 m tall, the stems are as much as 1.5 inches thick with very stout (and painful!) thorns, dense shrubby vegetation containing these shrubs was absent or minimal in this area of Lime Canyon in 1961 as shown by an aerial photo, 6700 ft, 9 June 2010, Jim McGrath 948 (MO). Det by Walter H. Lewis. [first report for NM]

— Schenk & Hufford [see Schenk & Hufford (2010) in Botanical Literature of Interest for locality information]

Mentzelia filifolia Schenk & Hufford (Loasaceae, narrow-leaved blazingstar): McKinley County. [first report for NM]

Mentzelia longiloba J. Darlington subsp. *longiloba* (Loasaceae, dune blazingstar): Hidalgo County. [first report for NM]

Mentzelia longiloba J. Darlington subsp. *chihuahuensis* Schenk & Hufford (Loasaceae, dune blazingstar): Hidalgo County. [first report for NM]

+*Mentzelia sivinskii* Schenk & Hufford (Loasaceae, Sivinski's blazingstar): San Juan County. [first report for NM]

— Hartman & Larson [see Hartman & Larson (2011) in Botanical Literature of Interest for locality information]

+*Cymopterus spellenbergii* Hartman & Larson (Apiaceae, Spellenberg's spring-parsley): Rio Arriba and Taos counties. [first report for NM]

— Chick Keller [4470 Ridgeway, Los Alamos, NM 87544]

Eriophorum gracile W.D.J. Koch ex Roth (Cyperaceae, slender cottongrass): Colfax

County: Vermejo Park Ranch, W105° 19'30" N36°57'36", wide sloping wet meadow fed by retreating snow field, with *Eriophorum scheuchzeri*, 12,650 ft, 12 August 2011, Chick Keller 3356 (UNM). [first report for NM]

— Russ Kleinman [25 Oxbow Drive, Silver City, NM 88061]

Crumia latifolia (Kindberg) W.B. Schofield (Bryophyta, Pottiaceae): Grant County: Black Range, Railroad Canyon 100 yards up the trail from the parking area, just past the first creek crossing, on wet river rock along the stream, 7100 ft, 19 Nov 2011, R. Kleinman 2011-11-19-1 with R. Felger (NMCR). [first report for NM]

— Richard Worthington [P.O. Box 13331, El Paso, TX 79913]

Leskea angustata Taylor (Bryophyta, Leskeaceae): Eddy County: Guadalupe Mts, near end of FSR 540 in uppermost branch of Big Canyon (T26S, R21E, sec 22, NW 1/4) (32 Deg 02.053'N, 104 Deg 47.47.623'W) 7000-7100 ft, on oak bark, 7 Jul 2010, R.D. Worthington 36146 (UTEP, COLO). Det by W.A. Weber [first report for NM]

Orthotrichum cupulatum Bridel (Bryophyta, Orthotrichaceae): Otero County: Sacramento Mts, north wall ridge of lower Cathy Canyon near junction with Brown Canyon., 6 Aug 2007, R.D. Worthington 34920 (COLO, DUKE, UTEP). Det by W.A. Weber. [Ed: The following specimens of this species have also been located]: Torrance County: Los Palos Canyon near Tajique, Cibola National Forest, on moist diffusely lit boulder in moist canyon, with *Quercus* and *Pinus ponderosa*, 1 Sep 1970, D.H. Norris 17766 (UC); McKinley County: On moist

(Continued on page 2, Plant Reports)

Botanice est Scientia Naturalis quae Vegetabilium cognitioem tradit.

— Linnaeus

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(Plant Reports, continued from page 1)

diffusely lit sandstone outcrop on vertical cliff in *Juniperus* and *Quercus* forest, in canyon along road about 1 mile north of Quaking Aspen Campground, Cibola National Forest, about 2300 m, 12 June 1993, D.H. Norris 81609 (UC). [first report for NM]

Orthotrichum pellucidum Lindberg (Bryophyta, Orthotrichaceae): Eddy County: Guadalupe Mts, near south end of For. Serv. Road 540 at switchback on south ridge above Middle Fork Big Canyon, complex conifer and oak woodland, on limestone, shaded rockface, 7100 ft (2160 m), 12 July 2000, R.D. Worthington 30142 (COLO, NMCR, UTEP). Det by W.A. Weber [first report for NM]

Pohlia obtusifolia (Bridel) Koch (Bryophyta, Mniaceae): Taos County: Sangre de Cristo Mts, upper Long Canyon Trail, 11,050 ft, 21 July 2004, R.D. Worthington 32653 (COLO, DUKE, NMCR, NY, UNM, UTEP). Det by W.A. Weber. [first report for NM]

Sisyrinchium chilense Hooker [including *S. ensigerum* E.P. Bicknell and *S. scabrum* Cham. & Schldt.] (Iridaceae, sword-leaf blue-eyed-grass): Eddy County, Guadalupe Mts, Sitting Bull Canyon 0.1 mile above Sitting Bull Falls, 4900 ft, (T24S, R22E, Sec 4, SE 1/4), 26 May 1983, Ferguson 314 (UTEP); Sierra County, Black Range, Kingston, picnic area on east side of town along Percha Creek, 6200 ft, (T16S, R8W, sec 18), 30 Jun 1985, R.D. Worthington 13308 (UTEP); Otero County, Sacramento Mts, along Rio Penasco 3.5 miles east of junction with NM 64 and 164 (T17S, R12E, Sec 17), 8000 ft, open area near spring and stream, 10 Jul 1980, R.D. Worthington 6197 (UTEP). All det by G. Nesom [first report for NM]

Tuerckheimia sivilae (Bartram) Zander (Bryophyta, Pottiaceae): Eddy County, Guadalupe Mts, near end of FSR 540 in uppermost branch of Big Canyon (T26S, R21E, sec 22, NW 1/4) (32 Deg 02.053'N, 104 Deg 47.623'W), 7000-7100 ft, on rock, 7 Jul 2010, R.D. Worthington 36147 (UTEP, COLO). Det by W.A. Weber [first report for NM]

David Lee Anderson [Environmental Stewardship, Bldg 163, White Sands Missile Range, NM 88002]

Ficus carica Linnaeus [Moraceae, common fig]: Doña Ana County: In old garden at Love Ranch in the WSMR/NASA co-use area on the north end of Quartzite Mountain, San Andres Mountains, only one sprout found, 14 May 1996, David Lee Anderson 6810, with Gretchen Norman, Mona Lamoreaux & Aaron Hicks; Same locality: 19 June 1997, David Lee Anderson 7095, with Jeanne Dye, Carol Finley & Phil Zwank; Between Zebra Site and San Nicholas Spring in deep arroyo on east facing slopes of Bennett Mountain, San Andres Mountains, two trees surviving, one of them forming a huge multi-stemmed clone, 2 June 2000, David Lee Anderson 7646, with Neil McCarthy, Debbie Houde-Nethers, Laura Myers & Robert Taylor. (all in the herbarium of WSMR) [first reports for NM]

— William R. Norris [Dept. Natural Sciences, Western New Mexico University, Silver City, NM 88061]

Carex gynocrates Wormskjold ex Drejer (Cyperaceae, northern bog sedge): Taos County: Sangre de Cristo Mts, Wheeler Peak, west slope on peaty, grassy edge of stream in wet mountain meadow, 10650 ft, 16 July 1971, F.J. Hermann 23996 (RM); Sangre de Cristo Mts, Carson National Forest, Goose Creek Trail #65, along creek, about 3.5 miles south of Red River, boggy area with stunted *Picea*, *Dodecatheon*, *Carex* species, and *Eriophorum*, 9700-1150 ft, 12 July 2006, J.E. Larson 8072 (RM). [first report for NM]

Carex limosa Linnaeus (Cyperaceae, mud sedge): San Miguel County: Sangre de Cristo range, Stewart Lake, northeast of Cowles, in bog, 29 July 1950, R.J. Fleetwood 9652 (UNM). [Reported by Martin & Hutchins (Flora of New Mexico), but questioned in later work, including FNA; this verifies this species's occurrence in NM, and vindicates M&H's report.]

Carex tetrastachys Scheele (Cyperaceae, Britton sedge): Socorro County: Bosque del Apache National Wildlife Refuge, near San Antonio, unknown collector no. 153 (NMC). Det by F.J. Hermann (as *Carex tetrastachys* subsp. *brittoniana*), by M.C. Fritts, and by W.R. Norris. [this confirms the report of this species by Martin & Hutchins (Flora of New Mexico), but questioned by later workers.]

Carex vesicaria Linnaeus (Cyperaceae, bladder sedge): Cibola County: Cibola National Forest, Natural Lake, west of Lookout Mountain, 18 July 1981, D.A. McCallum 1188 (UNM). [Reported by Martin & Hutchins (Flora of New Mexico), but questioned in later works, including FNA; this verifies this species's occurrence in NM, and vindicates M&H's report.]

— Kelly Allred [Range Science Herbarium, Dept. Animal & Range Sciences, New Mexico State University, Las Cruces, NM 88003]

Anomobryum julaceum (Bridel) Schimper (Bryophyta, Bryaceae): Sandoval County: Cuba Ranger District, Santa Fe National Forest, along highway 126 about 25 miles east of Cuba at Calaveras Canyon, R2E, T20N, section 27, 8350 ft, 16 Aug 2001, James R. Shevock 21099 (CA, UC). Det by J.R. Shevock. [first report for NM]

Brachythecium rotaceum DeNot. (Bryophyta, Brachytheciaceae): Bernalillo County: Sandia Mts, 1 Nov 1935, Ikenberry 5 (MO); Santa Fe County: Sangre de Cristo Mts, Santa Fe Nat. For., Dalton Canyon, near end of For. Ser. Rd 123, 7600 ft, W.R. Buck 39761, 39769 (MO); Taos County: Rio Hondo Canyon, 10 June 1938, no collector (NY100250502) All det by M. Ignatov. [first report for NM]

Distichium inclinatum (Hedwig) Bruch & Schimper (Bryophyta, Ditrichaceae): Taos County: Sangre de Cristo Mts, Long Canyon, 1/4 mile north of junction with Rio Hondo

(Continued on page 3, Plant Reports)

Botany is the natural science that transmits the knowledge of plants.

— Linnaeus



(Plant Reports, continued from page 2)

Canyon, 1 mile north of Twining, 16 July 1979, W.L. Baker 2011 (DUKE) Det by L.E. Anderson. [first report for NM]

Drepanocladus longifolius (Mitten) Brotherus ex Paris (Bryophyta, Amblystegiaceae): Rio Arriba County: Brazos Canyon, edge of pond, 8 Sep 1914, P.C. Standley 11210 (NY). Det by J. Zarnowiec. [first report for NM]

Eurhynchium hians (Hedwig) Sande Lacouture (Bryophyta, Brachytheciaceae): Grant County: Pinos Altos Mts, 0.5 miles south of Cherry Creek Camp, ravine, 24 April 1947, anonymous 2805 (MO). [this validates reports of this taxon by Conard & Redfearn (1979) and Grout (1928-40), for which no specimens were known.]

Hymenopappus radiatus Rose (Asteraceae, rayed hymenopappus): Grant County: Gila National Forest, bottom South Percha Creek, weed/grama community in clay loam on a level slope with *Bromus*, *Lycurus*, June grass, *Geranium*, *Senecio* and browse, scattered abundance, distributed in upper woodlands & ponderosa pine communities, 7000 ft, 21 Aug 1916, W.R. Chapline 628, USFS Accession 480045 (RM). Det by R. Hartman. [this validates an original report by Wootton & Standley for which no specimens were known].

Plagiomnium ciliare (Müller Hal.) Koponen (Bryophyta, Mniaceae): Catron County: Willow Creek, Gilita Campground, 17 Aug 1938, L.N. Goodding 98 (NY); Santa Fe County: Santa Fe Nat. Forest, Sangre de Cristo Mts, Dalton Canyon, near end of Forest Service Road 123, moist forest along stream, 7600 ft, 11 Aug 2001, W.R. Buck 39757 (NY). [first report for NM]

Plagiomnium medium (Bruch & Schimper) T. Koponen (Bryophyta, Mniaceae): Sandoval County: Valles Caldera National Preserve, Rodondo Creek, seep at top of Rodondo Creek drainage, on found on rotting wood and at the fallen

rotting trunk of *Alnus tenuifolia*, 9527 ft, 20 July 2010, Kirsten Romig 313.1 (NMCR, NY) Det by Bill Buck. Santa Fe County: Santa Fe Ski Basin, N35° 47' 45" W105° 48' 11", spruce-fir coniferous forest, on wet rocks in spring and creek, 10300 ft, 5 Aug 2010, Kelly Allred 10205 (NMCR). [first report for NM]

Platydictya subtilis (Hedwig) H.A. Crum (Bryophyta, Amblystegiaceae): Grant County: 14 miles north of Silver City, Pinos Altos Mts, along Cherry Creek, bark, base of hardwoods, 2225 ft, 7 Nov 1985, H.A. Crum 24607 (NY). [first report for NM]

Platygyrium repens (Bridel) Schimper (Bryophyta, Hypnaceae): Otero County: Sacramento Mts, conifer forest along steep slopes along hwy 82 a few miles south of Cloudcroft, just north of the entrance road to Snow Canyon Ski Area, 15 June 2000, W.D. Reese 18589 (MO). [first report for NM]

Pohlia tundrae Shaw (Bryophyta, Mniaceae): Santa Fe County: Sangre de Cristo Mts, Santa Fe Nat. For., Tesuque Peak, end of road to radio towers from Aspen Vista Picnic Area, 11900 ft, 10 Aug 2001, C.J. Cox s.n. (DUKE); same locality: J. Shaw 11524, 11526, 11527 (DUKE); same locality: W.R. Buck 39744 (NY). [first report for NM]

Viola macloskeyi F.E. Lloyd var. *pallens* (Banks ex Gingsins) C.L. Hitchcock (Violaceae, white violet): Rio Arriba County: 0.5 mi. WNW of Lagunitas Lakes area, N36.88065344° W106.3295433, semi-open edge of wetland fringing pond, 10,500 ft, 19 June 1998, Jim McGrath 72 (UNM). Taos County: Vermejo Park Ranch, along an unnamed stream 0.2 mi E of lower Twin Lake; 2.1 air mi ENE of Costilla Reservoir dam, N36°53'1.1" W105°14'40", 9767 ft, 30 June 2007, Ben Legler 5329 (RM). [initially reported by Wootton & Standley, but then considered absent from NM; this verifies this species for the state]

Outcomes of the 2011 Botanical Nomenclature Section at the XVIII International Botanical Congress

James S. Miller, Vicki A. Funk, Warren L. Wagner, Fred Barrie, Peter C. Hoch, & Patrick Herendeen

PhytoKeys 5: 1–3 (2011); www.phytokeys.com

Abstract: The Nomenclature Section held just before the 18th International Botanical Congress in Melbourne, Australia in July 2011 saw sweeping changes to the way scientists name new plants, algae, and fungi. The changes begin on the cover: the title was broadened to make explicit that the Code applies not only to plants, but also to algae and fungi. The new title will now be the *International Code of Nomenclature for algae, fungi, and plants*. For the first time in history the Code will allow for the electronic publication of names of new taxa. In an effort to make the publication of new names more accurate and efficient, the requirement for a Latin validating diagnosis or description was changed to allow either English or Latin for these essential components of the publication of a new name. Both of these latter changes will take effect on 1 January 2012. The nomenclatural rules for fungi will see several important changes, the most important of which is probably the adoption of the principle of “one fungus, one name.” Paleobotanists will also see changes with the elimination of the concept of “morphotaxa” from the Code.



Botanical Literature of Interest

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[Conservationists should assess organisms on environmental impact rather than on whether they are native or exotic]
- Drew, L.W. 2011. **Are We Losing the Science of Taxonomy?** *BioScience* 61(12):942-946. 2011.)
- Geltman, D.V., R. Riina, P.E. Berry, & J. Peirson. 2011. **Typification and synonymy of the species of *Euphorbia* subgenus *Esula* (Euphorbiaceae) native to the United States and Canada.** *J. Bot. Res. Inst. Texas* 5(1):143-151.
- Graham, A. 2011. **A Natural History of the New World: The Ecology and Evolution of Plants in the Americas.** University of Chicago Press. 387 pp.
- Hartman, R.L. & J.E. Larson. 2011. ***Cymopterus spellenbergii* (Apiaceae), a new species from north central New Mexico.** *J. Bot. Res. Inst. Texas* 5(1):33-40.
- Jarnevich, C.S., P. Evangelista, T.J. Stohlgren, & J. Morissette. 2011. **Improving national-scale invasion maps: tamarisk in the western United States.** *Western North American Naturalist* 71(2):164-175.
- Kim, C. & Choi, H-K. 2011. **Molecular systematics and character evolution of *Typha* (Typhaceae) inferred from nuclear and plastid DNA sequence data.** *Taxon* 60 (5):1417-1428.
- Knapp, S., J. McNeill, & N.J. Turland. 2011. **Changes to publication requirements made at the XVIII International Botanical Congress in Melbourne — What does e-publication mean for you?** *Phytoneuron* 2011-46: 1–6. Published 14 Sep 2011. ISSN 2153 733X
- Romaschenko, K., P.M. Peterson, R.J. Soreng, O. Futorna, & A. Susanna. 2011. **Phylogenetics of *Piptatherum* s.l. (Poaceae: Stipeae): Evidence for a new genus, *Piptatheropsis*, and resurrection of *Patis*.** *Taxon* 60 (6):1703-1716. [ahh, the more things change...]
- Schenk, J.J. & L. Hufford. 2010. **Taxonomic novelties from western North America in *Mentzelia* Section *Bartonia* (Loasaceae).** *Madrono* 57(4):246-260.
- Schenk, J.J. & L. Hufford. 2011. **Phylogeny and taxonomy of *Mentzelia* Section *Bartonia* (Loasaceae).** *Syst. Bot.* 36 (3):711-720.
- Schuster, T.M., J.L. Reveal, & K.A. Kron. 2011. **Phylogeny of *Polygoneae* (Polygonaceae: Polygonoideae).** *Taxon* 60 (6):1653-1666. [submergence of *Polygonella* into *Polygonum*]
- Sennikov, A.N. 2011. ***Chamerion* or *Chamaenerion* (Onagraceae)? The old story in new words.** *Taxon* 60 (5):1485-1488.
- Sigel, E.M., M.D. Windham, L. Huiet, G. Yatskievych, & K.M. Pryer. 2011. **Species relationships and farina evolution in the Cheilanthoid fern genus *Argyrochosma* (Pteridaceae).** *Syst. Bot.* 36(3):554-564.
- Small, E. 2009. **Top 100 Food Plants.** NRC Research Press, Ontario, Canada. 656 pp.
- Smith, G.F. & E. Figueiredo. 2011. **Conserving *Acacia* Mill. With a conserved type: What happened in Melbourne?** *Taxon* 60(5):1504-1506.
- Turner, B.L. 2011. **Biological status of *Hedeoma drummondii*, *H. reverchonii* (Lamiaceae) and closely related taxa.** *Phytologia* 93(2):174-180.
- Turner, B.L. 2011. **Taxonomy and distribution of *Senecio parryi* (Asteraceae).** *Phytologia* 93(3):341-345.
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- Turner, B.L. & M. Martinez. 2011. **Systematic reassessment of the North American *Physalis viscosa* complex (Solanaceae).** *Phytologia* 93(2):260-269.
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[Editor's note: The recent publication in BioScience of "Are We Losing the Science of Taxonomy" (Drew, L. BioScience, 61(12):942-946. 2011.) prompts the reappearance of Duane Isely's short story, below.]

THE DISAPPEARANCE

by Duane Isely*

Reprinted from TAXON 21(1): 3-12, FEBRUARY 1972

*Summary*¹

The role of taxonomists - in the total social structure as well as the academic subculture - is evidenced by their disappearance.

On March 22, 1973, 2:05 a.m. (eastern standard time), an unusual event occurred. In fact, one without precedent. Then and there vanished to the last man and woman all taxonomists, all of their works, and previous work of their ken; likewise the tools of their trade.

It is necessary to qualify in several ways. This fateful visitation extended completely across biology, animal and plant science alike. Herein I recount only some of the tremors within and extending from the plant sciences. The tribulations accruing as a consequence of the parallel zoological amputation were of a similar nature. Again, qualifications. Not all taxonomists were taken; a few (at least as to professional title) remained. These lonely survivors were certain of the numerical and chemotaxonomists plus scattered experimental biosystematists. Apparently these were individuals whose primary professional passions - largely of instrumentation, the elegance of mathematics, or perhaps comparative biochemistry - lay outside of systematic biology. Perhaps one inquires "Was it then the 'traditional', 'classic', 'alpha', 'anachronistic' taxonomists who were thus abruptly and perhaps properly removed from the world?" No, the scythe was much broader. Many taxonomic brethren who were preponderantly cytotoxonomists, chemotaxonomists, and who were otherwise deeply concerned with the most modern idiom, no longer came to their desks. In fact, the mortality was yet more inclusive; there were considerable inroads among other disciplines including conspicuous fatalities in ecology, systematic anatomy, genetics, evolutionary biology, agriculture and from among the enthusiastic amateurs. It seemed as though the hand (Divine - or otherwise) responsible for this event searched the souls of all, programmed for a particular combination of attributes, and performed the removal, regardless of external markings.

The nature of the identifying attributes was analyzed repetitively from all angles. It was evident that the diagnostic key characters included: those who write and (or) use systematic revisionary treatments, botanical floras and popular expositions on the kinds of plants; those who know the names of plants and where they grow, who can render technical identifications of plants; those whose research tools in part, or entirely, were the herbarium, the field, the library; those concerned with the whole plant and its relationship to its habitat, and its genealogical fellows; those whose emotions concerning these organisms and their environment had usually both aesthetic (often admitted only with qualifications) and intellectual bases.

The event

It is not directly germane to my subject to detail the nature of the disappearance and of public reaction. But a cursory review is desirable as a means of placing subsequent scientific repercussions in context.

The event was apparently world wide and simultaneous in occurrence. It was, of course, immediately emblazoned in incredulous headlines in newspapers in the United States, and the north European countries. In the orient, no formal announcement was made in several countries, but it may be that the number of individuals concerned was so small that the occurrence was attributed to some ingenious and unusual foul play. In the Soviet Union, the only initial information reaching the Western World was of some personnel problems within the Botanical Institute of the Komarov Academy of Sciences. Within a few weeks, however, formal statement was made of the same situation as in the rest of the scientific world.

The above assertion that the event was simultaneous cannot be entirely established. Owing to the early morning time in the United States, many of the disappearances were not recorded until some hours later. But all chance observations apparently coincided. For example, a night watchman in a large eastern University went into the herbarium at 2:00 a.m. for a routine key punch. All was in order when he walked in. When he turned around from manipulation of the key, the herbarium cases had disappeared. He was on sedatives for a week. There was the case of the woman from a midwestern University whose husband disappeared under circumstances in which his absence was immediately obvious. In her agitation, she knocked the clock off the bedside table; it broke and the mechanism remained at 1:05, equivalent, of course, to 2:05 eastern standard. All observations were equally confirmatory.

The social aftermath

The proportion of the nation's population and material goods which were affected was infinitesimal; thus no immediate physical

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(The Disappearance, continued from page 5)

emergency ensued. But the psychological impact resulted almost in national panic. Naturally, the unknown nature of the agency, or powers responsible for this happening and the implied possibility that the same thing (or something more calamitous) could occur again, independent of any known cause and effect, evoked trepidation. The subject was heatedly (even hysterically) discussed on the street, in the churches, the academic towers, and the halls of government. Numerous study committees erupted in universities, industry, and in Washington. Congress established an emergency government commission - with a new hot line to the White House - endowed with broad investigative powers.

The reasons for the selection of this particular professional group was as obscure as the agency of elimination. Taxonomy became a byword to millions of people who had never heard the term before; taxonomists by their absence achieved a level of notoriety antithetical to their previous role in the scientific community. There was much speculation concerning taxonomists as individuals, as a cultural group, and as a profession with a view towards discerning the reasons for their extirpation. Several church groups, seizing upon the taxonomist's role in the teaching of evolution, envisaged a situation of Divine retribution and warning; their membership increased tenfold within a year.

Withdrawal symptoms in the universities

The readjustment of the scientific community to life without taxonomists initially created only minor problems. After recovery from the initial shock, there was much competition within institutions for positions and physical facilities. There was no attempt to refill taxonomic positions as such for the simple reason that there were no qualified applications. Thus, it was necessary to drop nearly all taxonomically oriented courses from university offerings. There was local pressure to continue certain popular plant identification or spring flora courses, but, by and large, other botanists who were reasonably qualified were loath to attempt endeavors in this apparently dangerous field; there were, in any event, no reference or teaching guides available for such courses, these having gone the route of their authors. The greater problems in some institutions revolved around personnel to teach beginning botany, biology, morphology, and ecology courses since many of these had previously been manned by professors of taxonomic affiliation.

Intra-institutional competition for the physical space vacated by taxonomists developed rapidly: offices, herbarium rooms, laboratories, and the vacant shelves in libraries. The extensive space formerly occupied by some of the larger herbaria proved a major boon to overcrowded departments and institutions. For example, the vacant herbaria in four universities were eventually allotted in the following manner: a dance studio for physical education for women, storage for the physical plant department, a plant physiology laboratory, a file room for the registrar's office.

The plant science disciplines adjusted reasonably well to the withdrawal of their herbarium colleagues and there was some facetious discourse to the effect that while the plant identifiers had been reasonably ornamental frills, they were scarcely essential to the orderly growth of biology and agriculture. Certain disquieting symptoms were, however, quickly evident. Many workers, especially in the applied sciences, found themselves continuously handicapped by the loss of reference texts treating plant classification, distribution and identification. There was minor panic among veterinarians because there were few who knew poisonous plants in the field, and there was but little reference material to which to turn. A massive effort to prepare some kind of an identification manual was soon started, but difficulty was experienced in finding a group with the qualifications to undertake the endeavor.

Among the basic plant sciences, the teaching and research of the ecologists was subject to most obvious handicaps, first, because of a serious inroad in their number, and the need for determination of many wild species. The students in all areas, however, experienced recurrent incidents of uncertainty concerning the identity of the organisms they were working with or writing about, and the interpretation of literature in relation to current work.

But most of these annoyances and limitations remained just that; or solutions were gradually worked out. Others evolved into situations of institutional and national importance. A few examples:

What is this plant?

The identification of plant specimens soon constituted a public service embarrassment. Starting as an irritant, it rapidly became a major source of exasperation to both the public and to the plant scientists. As soon as six months after the disappearance, *Time* magazine carried a facetious article: "Botanists: the non-plant scientists". A conscientious extension horticulturist with the Agricultural College of a state university offered an interpretation of the furor.

"You see, people who are interested in plants - house plants, weeds, wild flowers, trees - or are concerned with them in business, are constantly submitting flowers, leaves, pieces of stems, seeds for identification. Even before this happened, I answered about 900 identification requests a year - and I get about 2-3 times that many now. I can identify about two-thirds of the things that come in fairly easily, common ornamentals, wild flowers or weeds. Previously I could do a lot better than this - but now I receive a lot of the less common or technical stuff that used to go to the botanist. I don't know these plants, and I no longer have any of my taxonomic books. So I have troubles. Often so-called specimens are fragmentary. Some look as if the guy had carried the sample in his overall pockets for six weeks before putting it in the mail. Some I can name to genus but don't know which species. Used to be I

(Continued on page 7. The Disappearance)



(The Disappearance, continued from page 6)

could look some things up, or I'd check with the plant taxonomist for help with the stinkers. He also got lots of this kind of stuff to handle even though it really wasn't part of his job; but he was used to it and he would always help me if he was around. If he wasn't in, and I had some time and hunches, I'd go into the herbarium and see if I could match the specimens. Now, I don't have any help, no good books, no nothing. And I get a hell of a lot more of this junk! Why? Well, the university over at Cedar City doesn't have an agricultural college like we do. And no people who know; common or economic plants. Their two taxonomists are gone, and the botany department refuses all identification requests. I guess they have to. I don't think most of their people would know the difference between a geranium and poison ivy. So they tell the public to send stuff over here; we get it all. Sure the papers are yelling about how dumb we are. But our Director is saying we're spending too much time on this ancillary activity. There ought to be somebody given a job of taking a census of all the plants in the state, and preparing it in a way so we could make determinations. I wouldn't want it as technical as those botanical manuals we used to have, but I think we need something like the keys that the taxonomists used. Trouble is, we don't have common names for a lot of the wild plants. We'd have to start all over and name everything. It's a hell of a mess!"

This man accepted a departmental headship in another state a year later. Subsequent to his leaving, the horticulture and agronomy departments decided to limit identifications to species of known economic importance. The botany department appointed a retired school teacher who was a wild flower enthusiast to a part time instructorship to take care of the plant-naming. The institution set up a plant resources committee with the avowed aim of tabulating and identifying by number and computer code all known species in the state. However, there was no formal transfer of a portion of anyone's official duties to this activity. The committee met a few times to discuss the problem and the possibility of hiring someone to do this job; but nothing came of the matter.

Plants need names or social security numbers

Difficulties in assigning the appropriate name to plant and animal species soon resulted in concern and uneasiness in the biological sciences. It was not that biology was without names. Several societies (the Weed Science Society and the Agronomy Society, for example) had previously published check lists of approved scientific and common names; from the few wildflower books remaining in existence, one could obtain the names of common wild species; and, of course, biological literature was replete with all kinds of technical names. Thus, no acute problems were immediately encountered among members of close knit disciplines which had well-known reference lists; and among whom at least some members knew what names referred to which plant. But difficulties in cross communication were soon encountered; enumerations of names had been prepared at different times and by different people; and numerous inconsistencies were not easily resolved. The scientific literature contained thousands of names which could not be matched in reference lists nor in anyone's knowledge.

Biologists in several countries established nomenclature committees to study the issues and establish consistency of utilization. After a couple of years, an International Commission on plant and animal nomenclature was organized and funded by FAO and the governments of several nations. The delegates were government representatives (e.g., the U.S. delegate was from the state department); advisors included specialists in biology, linguistics, computer science and related fields. Members-at-large and observers represented the lay public and various political groups.

During the few years of its existence, this commission had a frustrating and controversial history. Initially, the goal of establishing a register of all organisms and providing a designation for each was discussed. This was soon abandoned as unrealistic, and the enumeration limited to those "environmentally relevant." Yet, it appeared that the necessary list would include at least a thousand species.

The computer scientists and some biologists advocated a scientific designation of organisms which was a computer code characterizing each in a neo-Linnaean Fortran polynomial. Others insisted that man-to-man as well as man-to-computer communication was essential, and that scientific names would be required. The commission determined to pursue both courses of action. A couple of months were spent in discussion of the format and language of scientific names. Nine committees were established to investigate specific alternatives. Many of the delegates made several trips home for instructions from government authorities or national committees to whom they were responsible.

It was finally proposed that scientific names be rendered in English - the most widely used scientific language - and that names be short and euphonious. However, strong objections were registered by many delegates representing non-English speaking nations. Extended and occasionally acrimonious debate finally resulted in a compromise decision to return to a Latin format so that current improper national and political implications might be avoided. Following this decision, it was determined to take up scientific names in general usage at the time of the demise of the taxonomists. Subcommittees were established to prepare lists of such names for Commission approval.

In due course, appropriate enumerations including the names of more than two thousand species of plants were submitted for study and approbation. Some delegates were appalled by the magnitude of the task and a strong minority pressed for reducing the agenda to five hundred names. However, arguments for the greater number prevailed, and in fact, additional names were submitted nearly every day.

The majority of binomials under consideration were of consistent traditional usage. Most of them were accepted without major

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controversy. Objection was taken to some names because of their length or misleading descriptive nature and alterations were made. It was possible to reach decisions on approximately 80% of the names in this manner. However, in several instances, there were uncertainties as to what plants the names had reference: these situations were referred to subcommittees. Other subcommittees and ad hoc technical committees were assigned responsibilities of preparing computer diagnoses.

But determination of appropriate names for perhaps 20% of the taxa was accompanied by severe difficulties. There were found to be several available scientific names for numerous well-known species (for example: the soybean, the douglas fir), no one of which was acceptable to a voting plurality. Some species names were noted to be associated with more than one generic name (e.g., the apple: *Pyrus*, *Malus*) and some kinds were held to be species by certain biologists and varieties by others. Slow progress was made on the basis of formal ballot. Then a proposal made by a geneticist (USSR) and a flower breeder (US) was studied. Their posture was that the generic position of population aggregates as species or varieties should be affirmed only *pro tem*. final decisions awaiting studies of the relationships of the organisms concerned. Majority opinion: however, held that technical studies of relationship between organisms was unnecessary and irrelevant to nomenclature and the proposal was voted down.

Standing nomenclatural committees were established to thresh out individual binomials remaining" in contention and to receive lists of proposals of nameless plants for christening. The ecologists and conservationists desired names for many wild plants. A group of veterinarians assaying the toxic qualities of plants in connection with preparation of a new reference work desired names for numerous species. Much discussion ensued regarding the merit of demands of such special interest groups. The philosophy which ultimately emerged was that there should be no bar to individual disciplines developing supplementary nomenclature as needed, but that such should not properly be the concern of the Commission. Many of the government representatives (not always in concurrence with the biologists) took the position that beyond the limited number of major economic plants, biology should concern itself less with the kinds of plants than with their total effect on the welfare of man. For example, as the energetics of the biosphere involves the productivity of the earth's mantle as a whole, concern with individual species and their names was held to be of secondary importance. The matter of names for hundreds of minor poisonous plants was regarded as superfluous; appropriate efforts to eradicate these plants should, in any event, render nomenclature for them unnecessary.

These and related discussions rendered the Commission's progress so slow that it reached the end of its initial funded period with much work yet incomplete. At this time, several nations exhibited impatience with both the objectives and progress of the Commission and withdrew support. The final calamity was a series of partisan disputes concerning new names proposed by the Chinese delegation for rice, wheat and corn. A clash between ideological philosophies resulted in major rifts between the Chinese and Russian delegations, and the Russian and Israeli groups. Reaction in the United States Congress to the total objectives of the Commission became so negative that support was withdrawn. The endeavor was abruptly terminated.

The United States Rockefeller-Kennedy Institute for Plant Research

Among numerous incidents involving public welfare, the great loco-hunt and its antecedents perhaps received the most public attention. The orderly accession of plant materials to be tested for anti-cancer action had essentially ceased since the missing taxonomists were those who had primarily been responsible for the collection and determination of species for screening. But assays of collections stockpiled were continued at the National Cancer Institute and among cooperating research centers.² During routine bioassays on accessions of foliage and seeds of the leguminous genus *Astragalus* (commonly called locoweed), unprecedented remission of tumors in mice was encountered. Feverish reruns validated the original results. Much of the remaining material was crudely purified and used in the treatment of two terminal human cancer patients, and one of them made a rapid, temporal recovery. An inventory of *Astragalus* accessions at the Institute amounted to about 70 collections of foliage and 30 of seeds. Some were identified by binomial designations; the identification of others had gone no further than the botanist's accession number at the time his work was terminated. The fact that some of the material was named, however, was only of limited aid. A species such as *Astragalus bisulcatus* could be found in several reference books and was reasonably known to ranchers and veterinarians. Names such as *Astragalus kentrophyta*, *paysonii*, *fucatus* and many others were unavailable in literature and unknown to those called into consultation. Two different leaf samples identified only by number gave the most striking positive results; milder tumor remissive effects were obtained from another collection marked *Astragalus miser* var.? from central Wyoming.

The sample of one of the active species was inadvertently entirely used up as a result of subsequent trials. The foliage of the other consisted of large, pinnately compound leaves with pick-shaped (dolabriform) pubescence; there was no way of determining what it was.

Several collectors worked throughout the western states the coming growing season in areas where *Astragalus* was known to possess many species and some 1000 samples were gathered and assayed. Anti-cancer activity was evident in varying degrees from material of some ten collections. The subject material came from diverse areas in Mexico and the western United States, and seemed to represent 2-3 unrelated species groups.

The situation recalled in some quarters that of the search for the high alkaloid species or varieties of *Cinchona* during the second World War, or the exploration among the poorly known genera *Strophanthus* and *Dioscorea* as possible sources of precursors

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of the cortical steroids. But during those times in the past, taxonomists had been available not only to conduct the physical aspects of the exploration, but, most importantly, to quickly synthesize enough of the fragmentary taxonomic knowledge of the subject genera to render decisions and action impossible. And as a consequence, the western hemisphere was back in quinine production, and *Dioscorea* became the major backbone of the multimillion dollar cortical steroid industry (cortisone, "the pill"). Contrariwise, practical consideration relating to *Strophanthus* had proved too complex; it had largely dropped back into popular, if not taxonomic, oblivion.

The current problem was that the American *Astragalus* included several hundreds of species, many of which were extremely local and possibly approaching extinction. There was but limited knowledge of more than a few of them. No one concerned was sure how *Astragalus* was differentiated from related leguminous genera, particularly *Oxytropis*, (also commonly called locoweed), or whether some of the untested species among these related kinds might also possess allied chemical characters.

Due to the emotional trappings of a possible cancer cure and to somewhat exaggerated public press accounting, a public response rapidly developed: we can make an atomic bomb; we can put a man on the moon; let's pull out all of the stops for cancer! Congress reacted by approving an emergency crash program to supply the initial missing link, an undertaking directed towards obtaining a comprehensive descriptive and biological understanding of *Astragalus* and its immediate relatives in the Americas, and the establishment of gardens in which all genetic material could be tested and reserved. The emergency nature of the situation was heightened by the fact that the plants were being sought out by hundreds of amateur collectors; and that several industries were making wholesale collections in the preparation of "Astragalus juice" and other formulations as a preventative of, or possible cure for cancer.

An initial operating budget of \$100,000,000 was approved by Congress but through an oversight, no funds were designated for purchase of a site for the Institute, nor for capital construction. While three states were lobbying for the locale of the research center, the matter was settled by Winston Rockefeller's gift of 500 acres of a mountaintop in Arkansas. The Kennedy family chipped in by providing three million dollars for the first building. Hence, the agency was designated by a grateful country as the United States Rockefeller-Kennedy Institute for Plant Research. The lengthy alphabet designation, USRKIPR, was subsequently vulgarized to USURK.

A distinguished administrative scientist was appointed as director. He immediately established temporary headquarters in a town near the permanent site. A steering committee composed of fifteen scientists was appointed and charged to meet annually at the Institute and advise the director and staff concerning policy matters. Field exploration and assembly of a staff was initiated while the research building was under construction.

A systematic search of western North America was made over a period of 5 years. Upwards of 50,000 accessions were made of *Astragalus* and *Astragalus*-like plants. Over 20,000 of these were successfully established in 10 test gardens strategically located in different parts of the country. Detailed data were obtained from living and dried specimens of all accessions. These data related to the morphological and physiological nature of the plants, their cytology, and chemical relationships. Genetic investigations were initiated and population structure studied. Geographic and ecological data were tabulated. The data was programmed for computer storage and analyses. Although interpretation of the results and operational sequence was computer oriented, it was supplemented by judgments of research teams of the staff who passed on the validity of each decision or conclusion before as passing to the next.

The limits of this accounting do not allow for the parallel story of medical research. Suffice to say, test garden accessions were used as sources of material for the assaying of anti-cancer activity, and that the active agent was found to be produced by only a few of the seleniferous species³ and then under rather specific environmental conditions. Intensive physiological, genetic and chemical studies of phenotypes were undertaken. The immediate objectives related to identifying and isolating the active anticancer agents, and obtaining some understanding of factors affecting their metabolism. The very practical matter of growing the plants under agricultural conditions was investigated by other research teams. The end result of a lengthy and complex story was eventually, and indeed, a reasonably effective emergency deterrent for several kinds of cancer.

Returning to USURK. A major achievement was announced in the seventh annual report, the completion of a "Descriptive, ecological and evolutionary treatment of *Astragalus* in North America". The work with much supporting data was published in a multi-volume journal-like series; a two volume synopsis was prepared as a convenient reference for those concerned with applied *Astragalus* research.

A symposium was held to celebrate the appearance of this monumental effort of the new taxonomy, and as a kick-off for support for capital funds for three new buildings and funding for expansion into a program to inventory the remaining fragments of the North America Flora.

A plant physiologist from the New York Botanical Garden held one of the volumes on *Astragalus* in his hand and mused to a colleague of his who was present as a symposium speaker.

"Y'know, funny world. Not many people remember Rupert Barneby. He was one of those who disappeared. And not many knew him when he was around. Retirin' sort of chap with an independent income. At least he successfully resisted all formal efforts at employment. He was around the Garden (the New York Botanical Garden) quite a bit back then, and I knew him pretty well. A different fellow. He did *Astragalus*, you know. Two volumes like this (Barneby, 1964). He gave me a set, and they were on my

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shelves until the event. But I had fingered through them quite a bit. I spent a couple of hours this morning looking through this new set. Of course it's structured quite differently, and they use code numbers instead of the Latin names. But the organization of the genus, the conclusions concerning the species, the final taxonomy, if you wish, really seems not too different. It took Barneby twenty years of wandering around the west and pawing through carloads of herbarium hay. A lot longer than this gang here that busted clear through from scratch in seven years and half a billion dollars. And Barneby was able to draw on a lot of previous literature of Rydberg, Marcus Jones, and Asa Gray which we no longer have. But he put it together all himself. . . just because he wanted to."

Typification and epilogue

A fire gong clamored, the floor wavered, and the ceiling fell in. The man groaned, twisted upright, and slammed the alarm off. He fell back to a horizontal position and lay motionless. Then he shook slightly, and sat up again running his fingers through his ample, rumpled grey hair.

"Lord and Linnaeus! What a dream," he muttered. He swung around, planting his large bare feet on the gritty floor of the economy style motel room. The morning desert sun was coming through the windows. The room was in some disarray. A large field press lay in one corner, surrounded by a confetti of leaves, scraps of paper, broken stems, and a generous sprinkling of reddish sand. On a small, slightly slanting table were a couple of generously written field notebooks, several pencils, two empty beer cans, and a pocket altimeter. A camera hung over the back of the upright chair. Field boots lay akimbo under the table.

The botanist pushed himself erect and turned on a bedside radio. He proceeded slowly into the bathroom from whence soon came the sound of running water. In a minute he was visible, performing the rite of shaving. The morning news buzzed along. Several people had been killed by an unknown assailant in Los Angeles. Increased funding for the Mariner Mars Orbiters was stated by NASA to be essential if delay of 1-2 years was to be avoided. An investigation of programs supported by the National Science Foundation was underway. The chairmen of the Congressional subcommittee concerned had obtained a list of individual research grants and read a series of them during the hearing. Several congressmen questioned the Foundation's wisdom in using the money for certain of the more kooky research endeavors. Specifically mentioned was a grant for \$17,500 for two zoologists who were studying the mating habits of a certain group of gulls in Africa; a grant to a botanist in the amount of \$12,280 who was investigating chromosomes of mosses in Alaska was similarly subject to criticism. A female representative wondered why NSF couldn't develop some panty hose which wouldn't run.

The listener abruptly interrupted his shaving, strode in and snapped the radio off. Surrounded by silence, he picked up the razor again.

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Notes

*Department of Botany, Iowa State University, Ames, Iowa. Contribution to a symposium on Plant Taxonomy, Iowa Academy of Science. [deceased 1989]

¹This subjective montage of plant taxonomy obviously owes its idea-for-structure to Philip Wylie's *The Disappearance* (1951). I affirm this fact by taking up the same title, and gratefully acknowledge such plagiarism as may be evident.

²Why had not these collections of plant material disappeared as did all herbarium material? The answer is speculative: namely, that the purpose in collecting and preserving was other than taxonomic.

³A reader familiar with *Astragalus* may recall that one of the original accessions producing tumor recession was marked as *A. miser*, and that this inconspicuous but widespread species is not a selenophyte. Correct. Certainly the accession was misnamed as to its pre-event binomial. Its position in the new classification was soon evident, but its determination in the pre-event taxonomy of *Astragalus* could not be reconstructed.



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A Newsletter for the flora of New Mexico, from the Range Science Herbarium and Cooperative Extension Service, College of Agricultural, Consumer, and Environmental Sciences, New Mexico State University.

Domatia in New Mexico

Eugene Jercinovic

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The processes of evolution have given plants a seemingly infinite number of ways of adjusting to their environments so as to benefit their survival. Many adaptations are obvious and well-known. Others are quite subtle and infrequently observed. One such unusual adaptation is the formation of domatia. These structures are not uncommon in the tropics, being reported in 277 plant families and more than 2000 species, but are little known and quite uncommon in the United States.

Domatia (singular domatium) are plant structures evolutionarily modified into cavities serving as homes for insects, mites, thrips, even bacteria. There are two types, primary and secondary. Primary domatia derive from normal plant parts. Some plants develop swollen stems, internodes, or petioles which become hollow through tissue decay or are excavated by potential inhabitants. Some plants develop hollow stipular spines or tubers with empty chambers. Ants, wasps, or small bees residing in these sheltered domains fiercely defend the host plants. Plants with primary domatia are mainly tropical. Secondary domatia are atypical structures developed on abaxial leaf surfaces by plants to provide environments for animal symbionts. Most commonly these are tufts of hairs or marsupial-like pouches or a combination of both produced in the axils of vein branches at the bases of leaves or occasionally at other major vein branches farther from the leaf base. In contrast to the obviously intimidating creatures associated with primary domatia, small mites are the predominant occupants of secondary domatia.

The advantages of being defended by ants, wasps, or bees are not difficult to imagine. Mites, on the other hand, would not appear to be the most swashbuckling of defenders. In actual fact, mites living in secondary domatia are carnivorous, fungivorous, or microbivorous. Herbivorous arthropods like aphids, white flies, spider mites, minute pirate bugs, and big-eyed bugs suffer significant predation from carnivorous or parasitic mites living in domatia on leaves. Riverbank grape (*Vitis riparia*) can suffer heavily from grape powdery mildew. Fungivorous mites in leaf domatia have been shown to provide significant biological control of this mildew. Small but mighty. As eloquently stated by David Evans Walter from the University of Queensland in Australia: "Very small or obscure animals fall out of biodiversity inventories, fail to be represented in food web analyses or community studies, and generally escape notice unless they have an effect on their environment disproportionate to their size."

Plants have evolved the ability to produce domatia and pay a price in resources in the process. The presence of mites must provide sufficient benefit to the plants to justify the formation of domatia. Other housing structures like galls differ notably from domatia in

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Botanice est Scientia Naturalis quae Vegetabilium cognitioem tradit.

— *Linnaeus*



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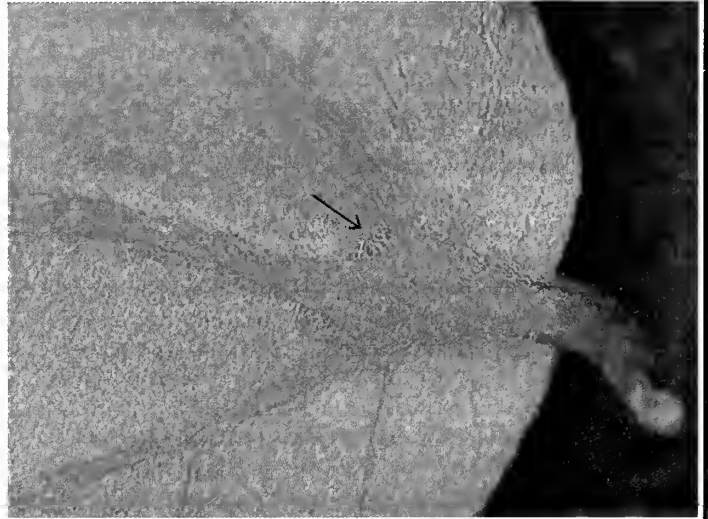
that domatia are initiated by the plant while galls are caused by the invading insects. Domatia provide a safe haven for oviposition as well as molting. Parasitization of eggs is also reduced within the domatia. In return, the mites help to control herbivory, parasitization, fungal infection, or disease. In addition, their waste can be absorbed in the domatia for use by the plant.

My first encounter with secondary domatia came in September 2011 on the southwestern flank of the Florida Mountains in Luna County. I ran across a group of dense, thorny shrubs. At each node of the stem a branch and a thorn occurred. Not immediately recognizing it, I collected a few branches to study. Upon close examination of the leaves, I noticed curious pouches in the axils of the veins at the base of the leaves on the abaxial side. After a bit of study and conversation, it became clear that the pouches were domatia. The plant was an unusual morph of *Celtis pallida*. The domatia on *C. pallida* are nicely illustrated in A. Michael Powell's *Trees and Shrubs of the Trans-Pecos and Adjacent Areas*, and can be seen in the photo here.

Prunus virginiana, *Prunus scrotina*, and the above men-

tioned *Vitis riparia* are other New Mexican plants documented to produce domatia. Domatia do not appear on very young plants.

Domatia are known to occur on some species of *Quercus* and *Acer*, and likely appear in other genera. I shall always look on leaves a bit differently.



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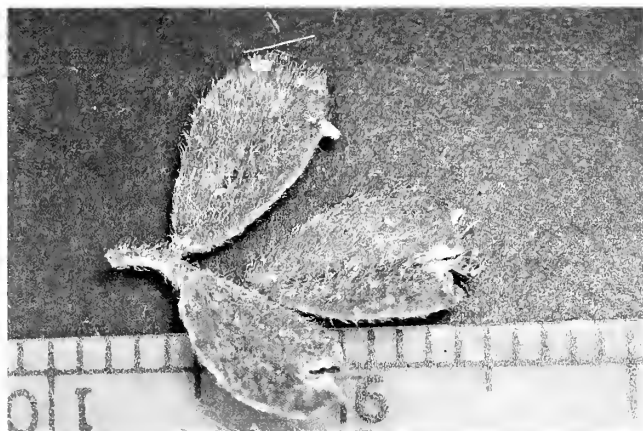
Plant Distribution Reports

New records and significant distribution reports for New Mexico plants should be documented by complete collection information and disposition of a specimen (herbarium). Exotic taxa are indicated by an asterisk (*), endemic taxa by a cross (+). Comments [in brackets] are the editor's.

— Russ Kleinman [25 Oxbow Drive, Silver City, NM 88061]

Medicago minima (Linnaeus) Linnaeus ex Bartolini

(Fabaceae, little burclover): Grant County: Silver City, campus of Western New Mexico University, Harlan Hall rear parking lot, in gravel along curb, in full sun, 23 Mar 2012, Russ Kleinman 2012-3-23-1 (SNM). [first report for NM] See photos following.



— Karen Blisard and Russ Kleinman [25 Oxbow Drive, Silver City, NM 88061]

Entodon seductrix (Hedwig) Muller Hal. (Bryophyta, Entodontaceae): Grant County: Black Range, Railroad Canyon about 100 meters upstream from the parking area at the first stream crossing, mixed conifer forest, growing on rock at bottom of north-facing rocky cliff, 7000 ft, 19 Jan 2012, Karen Blisard & Russ Kleinman 2012-1-19-3 (NMCR, SNM). [first report for NM]

Fossombronina sp. (Marchantiophyta, Fossombroniaceae): Grant County: Gila National Forest, approximately 100m south of Hwy 152 on Trail 78, Emory Pass, on the Grant County / Sierra County line, mixed conifer forest, on soil, growing with moss on west-facing slope, with *Pinus scopulorum*, *Abies concolor*, *Pinus strobiformis*, & *Pseudotsuga menziesii*, 13 Oct 2011, Karen Blisard and Russ Kleinman 2011-10-13-6 (SNM). Det by Paul Davison, Univ. North Alabama. Photo illustration at http://www.wnmu.edu/academic/nspages/gilafiora/fossombronina_sp.html. [Identification of species requires spores, which were absent, but this is the first known report of this liverwort family and genus for NM]

— William R. Norris [Dept. Natural Sciences, Western New Mexico University, Silver City, NM 88061]

Carex scopulorum Holm var. *scopulorum* (Cyperaceae, Rocky Mountain sedge): Taos County: Sangre de Cristo Mts, Long Canyon Trail about 0.1 mile above Taos Ski Resort parking, N36° 35.79' W105° 26.99', canyon bottom near stream, open seep at trail; spreading rhizomes, within spruce-fir forest, 9700 ft, 20 July 2004, R.D. Worthington 32660 (UNM, UTEP), det by Stanley Jones; Latir Mesa, Latir Lakes, about 30 meters below and east of shore of uppermost lake in seep adjacent to outflow stream, site is at timberline (Krummholz), sedge seep adjacent to stream, standing water sometimes present, densely rhizomatous, 3625 m, 13 Aug 2001, J. McGrath 341, 342, 353, 355 (UNM), det by A. Reznicek. [Also known from the Costilla Massif (Peterson, R. Vegetation of the Costilla Massif, Taos County: <http://aces.nmsu.edu/academics/rangescienceherbarium/documents/peterson---costilla-massif.pdf>); first reports for NM]

Carex senta Boott (Cyperaceae, swamp carex): Grant County: sandy alluvium at Little Creek Spring, 16 May 1993, Paul Boucher 1164 (SNM), det by A. Reznicek. [validates an earlier but questionable report by M&H]

Carex tenera Dewey (Cyperaceae, quill sedge): Rio Arriba County: 250 meters east-south-east of the Corkin Lodge within 20 meters of the road to Brazos Box, semi-open edge of seepy wetland, soil dark and loamy, with *Carex lanuginosa*, *Eleocharis* sp., *Thermopsis pinetorum*, *Veratrum californicum*, *Populus tremuloides*, *Juncus*

(Continued on page 4, Plant Reports)



(Plant Reports, continued from page 3)

nevadensis, *Carex stipitata*, and *Juncus saximontanus*, 8000 ft, 2 July 1998, Jim McGrath 98 (UNM). Det by Andrew Hipp. [this validates an unsubstantiated report for NM by L. Abrams (An illustrated flora of the Pacific States, Washington, Oregon, and California. 4 vols. Stanford Univ Press. 1940-1960)]

— Gene Jercinovic [6285 Algodon Road SW, Deming, NM 88030]

**Stellaria pallida* (Dumortier) Crépin (Caryophyllaceae, lesser chickweed): Luna County: Deming, courtyard of Mimbres Memorial Hospital, lawn and garden area, with lawn grass, *Dichondra micrantha*, *Erodium cicutarium*, 32°15.589' N 107°46.041', 4347 ft, 20 Feb 2012, E.M. Jercinovic 1202 (UNM, NMC). [first report for NM]

— Tim Lowrey [Museum of Southwestern Biology, MSC03 2020, 1 University of New Mexico, Albuquerque, NM, USA 87131-0001]

Agoseris glauca (Pursh) Rafinesque var. *dasycephala* (Torrey & Gray) Jepson (Asteraceae, arctic agoseris): Colfax County: Sangre de Cristo Mountains, Carson National Forest Valle Vidal Unit, 1.3 mi north of corral on Forest Road 1950, west and north to base of Little Costilla Peak, about 10,000 ft, 3 Aug 2002, Ronald L. Hartman 76308 (RM). Otero County: Sacramento Mts, Cox Canyon, 8,000 ft, 3 July 1949, E.F. Castetter and H.J. Dittmer 8732 (UNM). Det R.L. Hartman. Taos County: Gold Hill, south of Red River, 12,300 ft, 13 Aug 1955, E.F. Castetter and H.J. Dittmer 9912 (UNM). [first report of this variety for NM]

— Robert Sivinski [UNM Museum of Southwestern Biology, MSC03 2020, 1 University of New Mexico, Albuquerque, NM, USA 87131-0001]

Epilobium oregonense Haussknecht (Onagraceae, Oregon willow-herb): Rio Arriba County: San Pedro Parks Wilderness, Nacimiento Mountains, near Trail No. 43 in broad wet valley north of Vega Redonda, N36.10765° W106.78006° (WGS84), 9,870 ft, upper part of wet meadow on spongy ground with moss and *Carex aquatilis*, 2 Aug 2011, R.C. Sivinski 8070 with J. Tenorio, C. Keller and J. McGrath (MO, UNM). First reported collection for New Mexico. Peter Hoch identified this collection and says another specimen (A. Brown 59, COLO) from Mora County is also this species.

— Kelly Allred [2015 Jordan Road, Las Cruces, NM 88001]

Astragalus nuttallianus A.P. de Candolle var. *imperfectus* (Rydberg) Barneby (Fabaceae, Nuttall's milkvetch): Hidalgo County: Peloncillo Mts, mouth of Weatherby Canyon, 32.01610 -108.92520, 13 April 1986, R.D. Worthington 13962 (NY, UTEP); Animas Valley, along NM

Hwy. 338, 12.9 rd. mi south of Animas, roadside and low bluffs, 4900 ft, 21 April 1986, R.D. Worthington 14041 (NY, UTEP). Lincoln County: 5 miles west of Capitan, 33 32 35.00 N 105 39 45.00 W, juniper grassland, roadside gravels, 2 May 1986, R.C. Barneby 18073 (NY). Valencia County: 1 mile south of Seboyeta, 35 12 5.58 N 107 23 20.00 W, rubbly clay, volcanic mesa, 29 May 1983, R.C. Barneby 17941 (NY). [first report of this variety from NM; all specimens determined by R.C. Barneby]

Homomallium incurvatum (Schrader ex Bridel) Loeske (Bryophyta, Hypnaceae): Torrance County: Manzano Mts, Cibola Nat. Forest, along forest road 55, Canon de Tajique, about 2 miles below Fourth of July Campground, N34° 46'00" S106° 21'30", oak woodland with scattered ponderosa pine, on limestone rock outcrops with filtered light, 7500 ft, 17 Aug 2001, James R. Shevock 21146, 21248, with Dan Norris (CA, NMCR). Median and distal leaf cells are elongate-linear, much longer than other *Homomallium* (and similar to *Pylaisia*), but the capsules are nearly horizontal and strongly curved, with reddish brown setae (typical of *Homomallium*). In the U.S., known from Alabama, Arizona, Kentucky, and West Virginia; also Europe, Asia, Australia. First report for New Mexico.

Scleropodium obtusifolium (Mitten) Kindberg (Bryophyta, Brachytheciaceae): Grant County: 8 miles north of Silver City, Pinos Altos Mts, state hwy 15, on soil in stream bed, ponderosa pine forest floor, 7 Nov 1985, L.E. Anderson 24601 (NY). Det L.E. Anderson and verified by Bill Buck First report of this genus and species for NM.

— Richard Worthington [PO Box 13331, El Paso, TX 79913]

Mimosa turneri Barneby (Fabaceae, Turner's mimosa): Otero County: Sacramento Mts, Culp Rim Tank (32 Deg 33.676'N, 105 Deg 45.589'W), 5718 ft, 19 May 2008, R. D. Worthington 35063 (UTEP); Hueco Mts, about 0.5 mi. west of Bassett Ranch Ruins (32 Deg 01.028'N, 105 Deg 58.495'W), 5485 ft, 2 Aug 2008, R. Worthington 35334 (UTEP, NMC, ASU, UCR). Eddy County: near Dry Cave entrance, 4200 ft, 15 June 1971, R. Smartt 215 (UTEP). All determined by R. Barneby. [first report for NM]

— G.L. Nesom [see Nesom 2012, in Botanical Literature of Interest for locality information]

Erythranthe minor (A. Nelson) Nesom (Plantaginaceae/Phrymaceae): Taos County.

Erythranthe nasuta (Greene) Nesom (Plantaginaceae/Phrymaceae): Hidalgo, Grant, & Luna counties.

Erythranthe unimaculata (Pennell) Nesom (Plantaginaceae/Phrymaceae): Doña Ana County.

Botany is the natural science that transmits the knowledge of plants.

— Linnaeus



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Kelly Allred, editor

A handwritten signature in cursive script that reads "Kelly Allred".



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The New Mexico Botanist

Number 58

September 19, 2012

A Newsletter for the flora of New Mexico, from the Range Science Herbarium and Cooperative Extension Service, College of Agricultural, Consumer, and Environmental Sciences, New Mexico State University.

A New Mexico Botanist Review of Recent Botanical Books

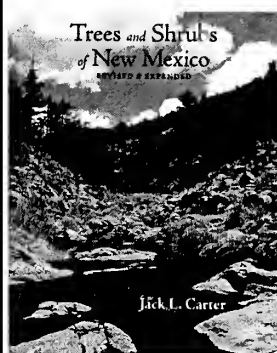
When I first came to New Mexico in the fall of 1979 (beginning in California, thence to Utah, thence to Texas, thence to New York, and thence to here), I found that to identify the plants of New Mexico, I could do one of two things: either scrounge around for a copy of Wootton & Standley's 1915 *Flora of New Mexico* (badly obsolete), or, sit at a table (preferably facing north) with a copy of Kearney & Peebles's *Arizona Flora* to my left, Welsh's *A Utah Flora* to my upper left, Weber's *Colorado Flora* straight ahead, and Correll & Johnston's *A Manual of the Vascular Plants of Texas* to my right (all frustratingly out of range). I was excited the following year when the first volume of Martin and Hutchins's *A Flora of New Mexico* appeared, which was followed in 1981 by volume 2.

We now suffer an embarrassment of riches, not only of state-wide resources, but extending to the southwestern regions and beyond. Each month (it seems) brings forth another field guide, manual, or monograph, sapping our purse strings and sagging our bookshelves.

We take the opportunity herein to review and announce some of the recent offerings, without any pretense to completeness or totality.

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 - Baja California Plant Guide 3
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Trees and Shrubs of New Mexico, revised & expanded, by Jack L. Carter. Mimbres Publishing, PO Box 1244, Silver City, NM 88062. ISBN-10: 0-9658404-4-1, ISBN-13: 978-0-9658404-4-6. 2012. xii + 524 pp.

[from the blurb on the back cover] "This fully revised and expanded edition of the 1997 *Trees and Shrubs of New Mexico* is designed to assist the educated layperson interested in identifying the New Mexico flora. This new edition includes the following:

- Over 500 stunning full-color photographs that not only aid in identification but demonstrate the beauty of the native flora.
- Over 450 finely detailed illustrations that highlight the important

characteristics of each species.

- Descriptions of 496 species, 21 more than the previous edition. This edition continues to help the reader identify the common cultivated and introduced species.
- Colorful county maps that show each species' distribution in New Mexico and in border counties of surrounding states.
- Updated nomenclature and taxonomic information, with synonyms where these can help with identification.
- Biographical sketches of noted botanists, which provide historical context.
- Landscaping tips for using native species, and suggestions for plants that are and are not appropriate for the New Mexico climate."

I cannot quibble or disagree with any of the preceding, taken from the blurb on the back cover. Carter's revised edition is indeed expanded, stunning, detailed, colorful, updated, and loaded with useful tips, guides and helps for identification, interesting ecological comments, and obscure but fascinating tidbits of information. Beginning botanists will find the superb photos and line drawings indispensable to their initiation to the wonders of New Mexico's woody plants; experienced users will rely a bit more on the detailed keys. But beware, the presentation and content are so entertaining, that one will find their evenings disappearing as they sit comfortably in an arm-chair entranced by a delightful tour of our native flora. Resist this urge, and get up and get out! And take this book with you!

Botanice est Scientia Naturalis quae Vegetabilium cognitiorem tradit.
— Linnaeus



Colorado Flora

EASTERN SLOPE

A Field Guide to the Vascular Plants



Colorado Flora, Eastern Slope, A Field Guide to the Vascular Plants, 4th edition, by William A. Weber & Ronald C. Wittmann. University Press of Colorado, Boulder. ISBN 978-1-60732-140-8. 2012. *li* + 555 pp.

Colorado Flora, Western Slope, A Field Guide to the Vascular Plants, 4th edition, by William A. Weber & Ronald C. Wittmann. University Press of Colorado, Boulder. ISBN 978-1-60732-142-2. 2012. *xlix* + 532 pp.

[from the blurbs on the back covers] "*Colorado Flora, Eastern and Western Slopes*, depict the remarkable flora of the state, distinctive in its altitudinal range, microhabitats, and ancient and rare plants. Together, the two volumes will educate local amateurs, students, researchers, professionals, and hikers in the recognition of vascular plant species, and encourage informed stewardship of our biological heritage. This thoroughly revised fourth edition reflects current taxonomic knowledge, replacing the now outdated previous editions. Each volume contains discussions of this unique botanical region and its mountain ranges, basins, and plains, and includes details on historical plant geography, habitat, distribution, and ecology. The keys recount intriguing anecdotes and introductions to plant families. The book is rounded out with historical background of botanical work in the state, suggested readings, glossary, index to scientific and common names, references, and many illustrations."

The preceding description of these books, taken from the blurbs on their back covers, gives an accurate account of the contents and usefulness of these volumes. But what it does not convey is the personality and extraordinary expertise of their authors. These fourth editions, more so than any of the previous three (and more so than any other plant manual that I know), are written in the first person singular of William A. Weber. Not to diminish in any way the obvious and excellent contribution of

the junior author (and I have experienced Ron's field expertise first-hand), Weber makes it clear in the extensive and intensely interesting introductory pages that he has something to say about North American botany, and his 66 years as a practicing Colorado botanist give him the perspective and authority to say it.

These volumes present not only the flora of Colorado through the eyes of Weber, but also his view of the current state of affairs of phylogenetics, classification, nomenclature, biological sciences in general, and practical botany in particular. He is a patron of the amateur botanist, clearly trumpeting their contributions past, present, and future. He also champions his right as an individual botanist to hold somewhat radical botanical views, and not only to publish and promulgate them, but also to proselytize others to his cause (I suppose I am a convert, to some extent). In addition, he is a formidable foe to the popular practice of inventing English "common" names in such a way as to create a totally unnecessary hierarchy of common name classification. (For example, *Erigeron* is fleabane, and all species of *Erigeron* must then be some sort of fleabane, such as bitter fleabane, silver fleabane, Bigelow's fleabane, tufted fleabane, hoary fleabane, spreading fleabane, tall fleabane, beautiful fleabane, subalpine fleabane, large-flower fleabane, black-head fleabane, etc. etc. Never mind that no one actually calls all these species these names, and in many cases folks call them something else, and never mind that the English names are simply translations of the Latinized scientific name—common names we must have and common names we will get.)

Weber and Wittmann clearly know their Colorado plants, and this is the greatest accomplishment of their work. You may differ with their classification and nomenclature (and you will), but you will rarely argue with how they lead you to identify a plant or where to find it. The keys contain numerous features that are field-worthy and not just herbarium-worthy; they tell us what we might expect to see when we encounter the plant in the meadow or on the slope, oftentimes features that disappear upon collecting, pressing, and mounting for the herbarium. This level of expertise comes to one only after long years of study and experience. We are the beneficiaries of their sharing it.

You will not only use these books, you will enjoy them.

Botanical Literature of Interest

Aedo, C. 2012. Revision of *Geranium* (Geraniaceae) in the New World. Syst. Bot. Monogr. 95:1-550.

Egger, J.M. 2012. The status of *Castilleja tomentosa* A. Gray (Orobanchaceae) and first records for this species from the United States. Phytoneuron 2012-72:1-7.

Marsh, J. (ed.) 2011. John Howard Redfield: In Search of *Shortia*, with Asa Gray in North Carolina. ISBN: 978-0-9852199-0-1. Order from jmarsh9@verizon.net. \$18.95. [This is a transcription of Redfield's journal as he traveled with Asa Gray in search of *Shortia*. We know Redfield from *Redfieldia flexuosa*, like *Shortia*, an illusive and almost unknown grass in New Mexico.]

Nesom, G.L. 2012. Taxonomy of *Polytaenia* (Apiaceae): *P. nuttallii* and *P. texana*. Phytoneuron 2012-66:1-12.

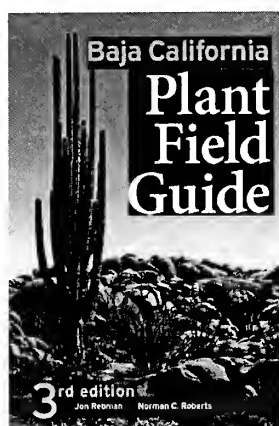
Nesom, G.L. 2012. Taxonomy of *Eurytaenia* (Apiaceae). Phytoneuron 2012-67: 1-7.

Snow, N. and P.M. Peterson. 2012. Nomenclatural notes on *Dinebra*, *Diplachne*, *Disakisperma*, and *Leptochloa* (Poaceae: Chloridoideae). Phytoneuron 2012-71:1-2.

Van Buren, R., J.G. Cooper, L.M. Shultz, & K.T. Harper. 2011. Woody Plants of Utah: A Field Guide with identification Keys to Native and Naturalized Trees, Shrubs, Cacti, and Vines. Utah State University Press. 528 pp.

Botany is the natural science that transmits the knowledge of plants.

— Linnaeus



Baja California Plant Field Guide, 3rd Edition

ISBN: 978-0-916251-18-5

Year: 2012.

Publisher: San Diego Natural History Museum with Sunbelt Publications

Book Specifications: Flex-bound ; 6" x 9"; 448 Pages

Book Price: \$34.95

[from a news release] "Over 715 different plants in more than 350 genera in 111 families are

described in the third and newest edition of *Baja California Plant Field Guide*. Authored by the 2011 San Diego Horticulturist of the Year, Jon P. Rebman, the book offers tribute to the late Norman C. Roberts, author of the first two editions. As the definitive work on the plants of Baja California, this title will be of great interest not only to botanists in the peninsula, but also to plant enthusiasts in southern California, as 50% of the species listed are also found in southern California and the Sonora desert.

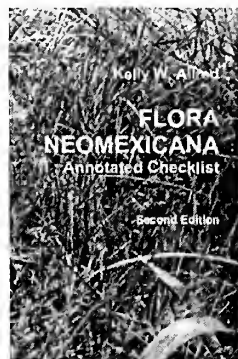
"Jon P. Rebman, who holds the Mary and Dallas Clark Endowed Chair and has been the Curator of Botany at the San Diego Natural History Museum since 1996, says of his work, "The desert regions of Baja California and southern California satisfy my need for scientific adventure while providing a sense of excitement towards botany, reverence for nature and its unaltered beauty, appreciation for the complexity of natural history, and an overall feeling of peace and purpose."

"The third edition is updated with three hundred additional plant species and the names are given in both English and Spanish. Ethnobotanical information describing the cultural uses of plants has been expanded in this edition. For example, the leaves of California Juniper are used in tea and natives used to eat its bitter berries after drying and grinding them.

"The guide also accounts intriguing and unusual species, including a parasitic plant that dwells inside of other plants and can only be observed when its flowers sprout through the host plant's stem, and another species of plant that is pollinated exclusively by blood-sucking wasps.

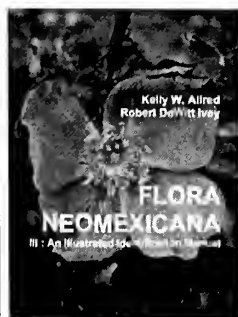
"Dr. Rebman is also the director of the San Diego County Plant Atlas Project and he photographs plants in his free time. Almost all of his photos are available and searchable online at the Museum's botanical websites: bajaflora.org and sdplantatlas.org."

FLORA NEOMEXICANA

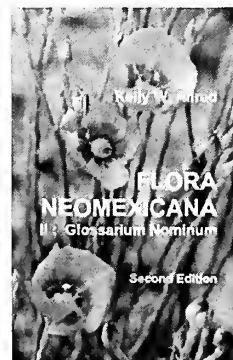


Volume I : Annotated Checklist, 2nd edition, 2012. by Kelly W. Allred. The 3783 species (and 4204 total taxa) of vascular plants occurring in the wild in New Mexico are listed, with synonymy, common names, whether native or exotic, references, and a complete accounting of all names that have been reported for New Mexico. Also included is an introduction to the climate, geologic history, soils, ecoregions, vegetation types, botanical history, and endemic, exotic, and noxious plants of the state. Available in paper- and hardbound versions; 6 x 9 inches; 603 pages.

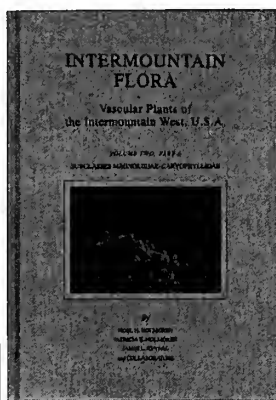
Volume II : Glossarium Nominum, 2nd edition, 2012. by Kelly W. Allred. The etymology, definition, and usage of each of the scientific names of New Mexico vascular plants are explained. Available in paper- and hardbound versions; 6 x 9 inches; 151 pages.



Volume III : An Illustrated Identification Manual, 1st edition, 2012. by Kelly W. Allred & Robert DeWitt Ivey (Eugene Jercinovic, editor). Identification keys are provided for the 3783 species (and 4204 total taxa) of vascular plants found in New Mexico. Approximately 1600 species are illustrated. A glossary of terms, and notes on habitat, distribution, and ecology are provided for each species. Available in paper- and hardbound versions; 8.5 x 11 inches; 719 pages.



Available at lulu.com



Intermountain Flora, Vascular Plants of the Intermountain West, U.S.A., Vol. 2,

Part A: Subclasses Magnoliidae-Caryophyllidae, by Noel H. Holmgren, Patricia K. Holmgren, James L. Reveal, and Collaborators. The New York Botanical Garden Press, Bronx. ISBN 978-0-89327-520-4. 2012. 731 pp.

[from the Introduction] "Volume 2, Part A, of *Intermountain Flora*, treating Cronquist's subclasses Magnoliidae, Hamamelididae, and Caryophyllidae, concludes the taxonomic treatments for the series. A small Supplement, including a key to all families, a cumulative index, and a brief history of the *Intermountain Flora* project, will be published within the coming year.

"The eight volumes of *Intermountain Flora* include descriptions of 146 vascular plant families, 898 genera, 3847 species, and 1571 varieties. An additional 426 cultivated species and 551 extralimital taxa are treated in keys and/or discussions. The five largest families are Asteraceae, Poaceae, Fabaceae, Brassicaceae, and Scrophulariaceae. The five largest genera are *Astragalus*, *Eriogonum*, *Penstemon*, *Carex*, and *Erigeron*."

And so, the *Intermountain Flora* comes to a close, pending the aforementioned Supplement. First published in 1972, with Volume 1, the series now reaches its completion 40 years later, with six numbered volumes comprising eight separate books (volumes two and three each with two parts). How to best describe and review, not only this concluding volume, but the entire series? Presentation, quality of production and layout, and artistic rendition are best described by the words astounding, impressive, magnificent, lavish, and enormously useful. Description of the scholarly work must include complete, detailed, exact, monographic, accurate, and trustworthy. General descriptors for the whole will include major contribution, most important, can't-do-without, invaluable, and spend-your-money-on-this. Indeed, this is the standard bearer for all future floristic works.

Why the rave review? Content alone provides much of the answer. Treatments of families, genera, and species include detailed morphologic descriptions; relevant comment on classification, nomenclature, distribution, variation, biology, and economic utility; pertinent references; well-designed indented keys (away with those clumsy and confusing bracketed keys!) to families, genera, species, and varieties; complete synonymy, citing types and localities; statements of geographic distribution, not only within the Intermountain Region, but throughout the range of the species; and perhaps most useful, detailed and accurate line drawings of every species and many varieties or forms. And, all of this is done expertly, accurately, completely, and scientifically.

Users will want to know that volume 2A includes the fol-

lowing families: Nymphaeaceae, Saururaceae, Magnoliaceae, Ceratophyllaceae, Papaveraceae, Fumariaceae, Berberidaceae, Ranunculaceae, Platanaceae, Altingiaceae, Ulmaceae, Cannabaceae, Moraceae, Urticaceae, Fagaceae, Juglandaceae, Betulaceae, Plumbaginaceae, Polygonaceae, Caryophyllaceae, Chenopodiaceae, Amaranthaceae, Aizoaceae, Sarcobataceae, Nyctaginaceae (by our friend Richard Spellenberg), Molluginaceae, montiaceae, Portulacaceae, and Cactaceae.

Comparison of the *Intermountain Flora* region with the flora of New Mexico yields the following: families IMF 146, NM 158; genera IMF 898, NM 1057; species IMF 3847, NM 3783; total taxa IMF 5418, NM 4204.

What's not to like? Well, nothing! I can think of no criticisms of this impressive series. But, there are consequences of such an encyclopedic endeavor of which a New Mexico botanist will want to be aware: 1) Size and weight. You can't put these in your backpack and take them along on a trip into the Pecos Wilderness. Volume 2A alone weighs approximately five pounds; the entire series is over 20 pounds. These are reference books designed for the lab and workbench. 2) Price. The most recent volume 2A is listed at \$150; the entire series will go for \$640 (but NYBG Press will sell it for \$520). It's not that they are not worth that amount, they definitely are. It's simply one of the consequences to be aware of. I say, spend the money! 3) Coverage. The geographic limits of the Intermountain Region *per se* do not extend into New Mexico. Nevertheless, many of the plants do. But if you venture too far from the northwest quarter of the state, the books become less and less useful, because the chances that you are looking at something not in the book increases dramatically. 4) Age. The series began as I commenced my junior year as an undergraduate. The intervening 40 years have brought many and significant changes to the theory and practice of taxonomy and classification, as well as actual floristic content of the Intermountain Region. The early books are dated, in this regard. However, their value in identification is scarcely altered; one must simply be aware of changes in (mostly) family, genus, and species disposition. 5) Mass of work. This is a once-in-a-lifetime endeavor. There will be no updates, no corrections, no revisions, no second editions. More plants will be found in the region, classification and nomenclature (which are extremely important) will change, identification features will be clarified. (Not to worry—you and I will be long gone before these books sit on the shelf unused.) As good as *Intermountain Flora* is, the most useful floristic works for a local botanist are always the most local, mostly because they can be corrected and updated. *A Utah Flora* is in its 3rd edition; *Colorado Flora* is in its 4th edition; *Guide to the Flora of the Jornada Plain* is in its 7th edition; and *Flora Neomexicana* vols. I & II already have 2nd editions, and the 2nd edition of vol. III is anticipated within 10 years.

Despite the above consequences and limitations, these are very useful books for New Mexico botanists. Their consultation will uplift the quality of our work. Their example will inspire our own efforts. If you are interested in the Intermountain flora, go get your copies. You will be astounded. They are that good.



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Email: kbustos@nmsu.edu

Available on-line at <http://aces.nmsu.edu/academics/rangescienceherbarium/>

Kelly Allred, editor

Kelly Allred

Plant Distribution Reports

New records and significant distribution reports for New Mexico plants should be documented by complete collection information and disposition of a specimen (herbarium). Exotic taxa are indicated by an asterisk (*), endemic taxa by a cross (+). Comments [in brackets] are the editor's.

— Richard Worthington [PO Box 13331, El Paso, TX 79913]

**Prunus mahaleb* Linnaeus (Rosaceae, St. Lucie cherry): Otero County: Sacramento Mts, Karr Canyon along FSR 63 at the lowest road closure gate, about 30 m west of the gate, N32° 54.384'

W105° 48.81', a tree 8 m high with multiple trunks and seedlings along canyon channel bank for 50 m, 7525 ft, 16 May 2012, R. Worthington 36533 (NMC, NMCR, SRSC, UNM, UTEP) (det by J.R. Rohrer). [first report for NM]



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The New Mexico Botanist

Number 59

April 1, 2013

A Newsletter for the flora of New Mexico, from the Range Science Herbarium and Cooperative Extension Service, College of Agricultural, Consumer, and Environmental Sciences, New Mexico State University.

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Plant Distribution Reports

New records and significant distribution reports for New Mexico plants should be documented by complete collection information and disposition of a specimen (herbarium). Exotic taxa are indicated by an asterisk (*), endemic taxa by a cross (+). Comments [in brackets] are the editor's.

— Tim Lowrey [Museum of Southwestern Biology, MSC03 2020, 1 University of New Mexico, Albuquerque, NM, USA 87131-0001]

Hexalectris colemanii (Catling) A.H. Kennedy & L.E. Watson (Orchidaceae): Hidalgo County: Peloncillo Mountains, Cottonwood Canyon, 390 m east of Arizona-New Mexico state boundary, 130 m east of Geronimo Trail, 7.5' USGS Skeleton Canyon topographic quadrangle Zone 12A 0685596mE, 3486984mN (NAD83), Lat. 31.5028, Long. -109.0457 (WGS84), *Quercus grisea* woodland with

Agave palmeri, *Arctostaphylos pungens*, *Rhus choriophylla*, *Elymus elymoides*, *Eragrostis intermedia*, *Ericameria laricifolia*, *Juniperus deppeana*, *Muhlenbergia emersleyi*, *Nolina microcarpa*, *Quercus emoryi*, and *Rhus trilobata*, single individual in sandy soil between boulders on east side of canyon in duff under *Q. grisea*, 1620m (5315ft), 31 May 2012, Michelle Cloud-Hughes 27 with Marc Baker and Ron Coleman (UNM). [first report of this species for NM].

Dear Friends of New Mexico Botany:

There will be a persistent pause in the perennial publication of The New Mexico Botanist newsletter, while the editor pursues personal plans (a heavenly hiatus) for a year or two, somewhere out of New Mexico and far from our fabulous flora. The newsletter began September 1995 with issue one, and issue 59 concludes on April 1, 2013. During this time, we publicized plant prosperity for over six-hundred spectacular species of New Mexico plants, from *Abronia nana* to *Zygadenus mogollonicus*, and broadcast brief botanical biographies on perhaps peculiar but never perverse personalities from W.A. Archer to B.H. Warnock. Twice (maybe more?) we learned of Loof Lirpa, that courageous collector from the country of the Czechs, who discovered the little-known *Aprilis stultis* (family *Fatuaceae*), which regularly roams round the Round House in Santa Fe. From beginning to end, we have been continuously content with the courteous collegiality among our colloquium, as well as the constant creativity of our clairvoyant and crafty colleagues. We bid you fondly farewell (for now), with wise words from the poem, "Botany", by Berton Braley:

There should be no monotony
In studying your botany;
It helps to train
And spur the brain—
Unless you haven't got any.

Botanice est Scientia Naturalis quae Vegetabilium cognitiorem tradit.

— Linnaeus



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Kelly Allred, editor

Kelly Allred



*The New Mexico
Botanist*

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Las Cruces, NM 88003

Plant Distribution Reports

New records and significant distribution reports for New Mexico plants should be documented by complete collection information and disposition of a specimen (herbarium). Exotic taxa are indicated by an asterisk (*), endemic taxa by a cross (+). Comments [in brackets] are the editor's.

— Tim Lowrey [Museum of Southwestern Biology, MSC03 2020, 1 University of New Mexico, Albuquerque, NM, USA 87131-0001]

Hexalectris colemanii (Catling) A.H. Kennedy & L.E.

Watson (Orchidaceae): Hidalgo County: Peloncillo Mountains, Cottonwood Canyon, 39 m east of Arizona-New Mexico state boundary, 130 m east of Geronimo Trail, 7.5' USGS Skeleton Canyon topographic quadrangle Zone 12A 0685596mE, 3486984mN (NAD83), Lat. 31.5028, Long. -109.0457 (WGS84), *Quercus grisea* woodland with *Agave palmeri*, *Arctostaphylos pungens*, *Rhus choriophylla*, *Elymus elymoides*, *Eragrostis intermedia*, *Ericameria laricifolia*, *Juniperus deppeana*, *Muhlenbergia emersleyi*, *Nolina microcarpa*, *Quercus emoryi*, and *Rhus trilobata*, single individual in sandy soil between boulders on east side of canyon in duff under *Q. grisea*, 1620m (5315ft), 31 May 2012, Michelle Cloud-Hughes 27 with Marc Baker and Ron Coleman (UNM). [first report of this species for NM].

— Nesom, G.L. 2012. Taxonomy of *Apiastrum*, *Ammoselinum*, and *Spermolepis* (Apiaceae). *Phytoneuron* 2012-85: 1-49.

Spermolepis lateriflora Nesom: Dona Ana, Grant, Hidalgo, and Luna counties. [new species & first report for NM]

Spermolepis organensis Nesom: Dona Ana County. [new species & first report for NM]

— Harms, R.T. 2014. A new species of *Evolvulus* (Convolvulaceae) from the High Plains of the Texas/New Mexico border. *Phytoneuron* 2014-20: 1-20.

Evolvulus arenarius Harms: Chaves, Curry, Eddy, and Roosevelt counties. [new species & first report for NM]

— Turner, B.L. 2012. Taxonomy of the *Croton texensis* complex (Euphorbiaceae). *Phytologia* 94(1):35-39.

Croton texensis (Klotzsch) Müller Argoviensis var. *utahensis* Cronquist: Catron, Chaves, Dona Ana, Eddy, Grant, Guadalupe, Rio Arriba, and Santa Fe counties. [first report for NM]

— Nesom, G.L. 2014. Taxonomy of *Cyclanthera* (Cucurbitaceae) in the USA. *Phytoneuron* 2014-11: 1-17.

Cyclanthera gracillima Nesom: Dona Ana and Hidalgo counties.

Cyclanthera naudiniana Nesom: Mora, San Miguel, and Union counties.

— Al-Shehbaz, I.A. 2013. *Draba henrici* (Brassicaceae), and new species from northern New Mexico. *Harvard Papers in Botany* 18(1): 91-93.

Draba henrici Al-Shehbaz: Taos County.

— Larson, J., B. Reif, B.E. Nelson, & R.L. Hartman. 2014. Floristic studies in north central New Mexico, U.S.A., the Sangre de Cristo Mountains. *J. Bot. Res. Inst. Texas* 8(1): 271-303.

Artemisia borealis Pall. (Asteraceae): Taos County. [first report for NM]

Crepis tectorum Linnaeus (Asteraceae): Colfax County. [first report for NM]

Erigeron compositus Pursh (Asteraceae): Taos County. [first report for NM]

Triplenrospermum inodorum (Linnaeus) Schultz-Bipontinus (Asteraceae): Taos County. [second report for NM]

Draba nemorosa Linnaeus var. *nemorosa* (Brassicaceae): Taos County. [first report for NM]

Lepidium densiflorum Schrader var. *macrocarpum* G.A. Mulligan (Brassicaceae): Taos County. [first report for NM]

Silene hitchguirei Bocq. (Caryophyllaceae): Taos County. [first report for NM]

Carex gynocrates Wormskjold ex Drejer (Cyperaceae): Taos County. [second report for NM]

Carex lenticularis Michaux var. *lipocarpa* (Holm) L. Standley (Cyperaceae): Santa Fe County. [verified for NM]



Botanical Literature of Interest

- Aedo, C. 2012. **Revision of *Geranium* (Geraniaceae) in the New World**. Syst. Bot. Monogr. 95:1-101. Coles, J.J., K.L. Decker, & T.S. Naumann. 2012. **Ecology and population dynamics of *Sclerocactus mesae-verdae* (Boisssev. & C. Davidson) L.D. Benson**. Western North American Naturalist 72(3): 311-322.
- Al-Shehbaz, I.A. 2014. **A synopsis of the genus *Noccaea* (Coluteocarpeae, Brassicaceae)**. Harvard Papers in Botany 18(1): 25-51.
- Al-Shehbaz, I.A. 2013. ***Draba henrici* (Brassicaceae), and new species from northern New Mexico**. Harvard Papers in Botany 18(1): 91-93.
- Appel, H.M. & R.B. Cocroft. 2014. Plants respond to leaf vibrations caused by insect herbivore chewing. Oecologia DOI 10.1007/s00442-014-2995-6. [online]
- Brach, A.R. & D.E. Boufford. 2011. **Why are we still producing paper floras?** Ann. Missouri Bot. Gard. 98: 297-300. [do you know the answer to that question?]
- Cholewa, A.F. 2014. ***Lysinachia latifolia* (Myrsinaceae), an overlooked nomenclatural change**. Phytoneuron 2014-28: 1-2. [and other nomenclatural changes]
- Ciadella, A.M., S.M. Sede, K. Romaschenko, P.M. Peterson, R.J. Soreng, F.O. Zuloaga, & O. Morrone. 2014. **Phylogeny of *Nassella* (Stipeae, Pooideae, Poaceae) based on analyses of chloroplast and nuclear ribosomal DNA and morphology**. Syst. Bot. 39(3): 814-828.
- Culley, T.M. 2013. **Why vouchers matter in botanical research**. Applications in Plant Sciences 1(11): 1300076. [online journal]
- Egger, J.M. 2012. **The status of *Castilleja tomentosa* A. Gray (Orobanchaceae) and first records for this species from the United States**. Phytoneuron 2012-72: 1-7. [validates recognition of *C. tomentosa* in NM]
- Finley, W.F. & L.J. Nieland. 2013. **Land of Enchantment Wildflowers**. Texas Tech University Press. 383 pp. [a beautifully illustrated field guide]
- Fuentes-Bazan, S., G. Mansion, and T. Borsch. 2012. **Towards a species level tree of the globally diverse genus *Chenopodium* (Chenopodiaceae)**. Molec. Phylogenet. Evol. 62: 359-374.
- Fuentes-Bazan, S., P. Uotila, and T. Borsch. 2012. **A novel phylogeny-based generic classification for *Chenopodium sensu lato*, and a tribal rearrangement of Chenopodioideae (Chenopodiaceae)**. Willdenowia 42: 5-24. [*Chenopodium* divided into seven genera]
- Grusz, A.L. & M.D. Windham. 2013. **Toward a monophyletic *Cheilanthes*: The resurrection and recircumscription of *Myriopteris* (Pteridaceae)**. PhytoKeys 32: 49-64.
- Grusz, A.L., M.D. Windham, G. Yatskievych, L. Huiet, G.J. Gastony, & K.M. Pryor. 2014. **Patterns of diversification in the xeric-adapted fern genus *Myriopteris* (Pteridaceae)**. Syst. Bot. 39(3): 698-714.
- Harms, R.T. 2014. **A new species of *Evolvulus* (Convolvulaceae) from the High Plains of the Texas/New Mexico border**. Phytoneuron 2014-20: 1-20.
- Hartman, R.L. and G.L. Nesom. 2012. **Taxonomy of the genus *Vesper* (Apiaceae)**. Phytoneuron 2012-94: 1-9. [segregation of *Vesper* from *Cymopteris*]
- Jimenez-Mejias, P., M. Luceno, & S. Martin-Bravo. 2014. **Species boundaries within the southwest Old World populations of the *Carex flava* group (Cyperaceae)**. Syst. Bot. 39(1): 117-131.
- Lang, A. & M. Stech. 2014. **What's in a name? Disentangling the *Dicranum scoparium* species complex (Dicranaceae, Bryophyta)**. Syst. Bot. 39(2): 369-379.
- Lemmon, J.G. 1881. "A Botanical Wedding-Trip", *The Californian*, v.4 (Dec. 1881), pp. 517-525. [you can read this here http://www.nybg.org/files/The_Californian_BotanicalWeddingTrip.pdf]
- Locklear, J.H. 2014. **Taxonomic identity and historical accounts of *Dalea cylindriceps* (Fabaceae), and species of conservation concern in the Great Plains (U.S.A.)**. J. Bot. Res. Inst. Texas 7(2): 879-890.
- Kadereit, G., E.V. Mavrodiev, E.H. Zacharias, and A.P. Sukhorukov. 2010. **Molecular phylogeny of Atripliceae (Chenopodioideae, Chenopodiaceae): implications for systematics, biogeography, flower and fruit evolution, and the origin of C4 photosynthesis**. Amer. J. Bot. 97: 1664-1687. [dissolution of *Atriplex*]
- Kennedy, A.H. & L.E. Watson. 2010. **Species delimitations and phylogenetic relationships within the fully myco-heterotrophic *Hexalectris* (Orchidaceae)**. Syst. Bot. 35(1):64-76.

(Continued on page 3)

Botany is the natural science that transmits the knowledge of plants.

— Linnaeus



(Continued from page 2)

- Larson, J., B. Reif, B.E. Nelson, & R.L. Hartman. 2014. **Floristic studies in north central New Mexico, U.S.A., the Sangre de Cristo Mountains.** J. Bot. Res. Inst. Texas 8(1): 271-303.
- Lipscomb, B.L. 2013. **In memory of BRIT co-founder Wm. F. "Bill" Mahler, 1930-2013.** J. Bot. Res. Inst. Texas 7(2): 615 – 631. [must reading for all Southwestern botanists]
- McNeill, J. et al. (eds.) 2012. **International Code of Nomenclature for algae, fungi, and plants (Melbourne Code).** Online version available at <http://www.iapt-taxon.org/nomen/main.php>
- Mosyakin, S.L. 2013. **New nomenclatural combinations in *Blitum*, *Oxybasis*, *Chenopodiastrium*, and *Lipandra* (Chenopodiaceae).** Phytoneuron 2013-56: 1–8. [nomenclatural follow-up to the break-up of *Chenopodium*]
- Nazaire, M. & L. Hufford. 2014. **Phylogenetic systematics of the genus *Mertensia*.** Syst. Bot. 39 (1): 268-303.
- Nesom, G.L. 2012. **Taxonomy of *Polytaenia* (Apiaceae): *P. nuttallii* and *P. texana*.** Phytoneuron 2012-66: 1–12. [verifies that *P. nuttallii* does not occur in NM]
- Nesom, G.L. 2012. **Taxonomy of *Eurytaenia* (Apiaceae).** Phytoneuron 2012-67: 1–7. [corrects identification of NM species to *E. hinckleyi*]
- Nesom, G.L. 2012. **Taxonomy of *Apiastrum*, *Ammoselinum*, and *Spermolepis* (Apiaceae).** Phytoneuron 2012-85: 1–49. [two species new to NM]
- Nesom, G.L. 2012. **Notes on the *Garrya ovata* (Garryaceae) complex.** Phytoneuron 2012-97: 1–6. [*G. ovata goldmanii* recognized at specific rank]
- Nesom, G.L. 2013. **New distribution records for *Erythranthe* (Phrymaceae).** Phytoneuron 2013-67: 1–15.
- Nesom, G.L. 2014. **Taxonomy of *Cyclanthera* (Cucurbitaceae) in the USA.** Phytoneuron 2014-11: 1–17. [segregation of *C. dissecta* into four species, with two new names for NM]
- Nesom, G.L. 2014. **Taxonomy of *Erythranthe* sect. *Erythranthe* (Phrymaceae).** Phytoneuron 2014-31: 1–41. [our old *Mimulus*]
- Nesom, G.L. 2014. **Updated classification and hypothetical phylogeny of *Erythranthe* sect. *Simiola* (Phrymaceae).** Phytoneuron 2014-81: 1–6.
- Peterson, P.M., K. Romaschenko, N. Snow, and G. Johnson. 2012. **A molecular phylogeny of *Leptochloa* (Poaceae: Chloridoideae: Chlorideae).** Ann. Bot. 109: 1317–1329. [supports dissolution of *Leptochloa* into five genera]
- Pruski, J.F. and R.L. Hartman. 2012. **Synopsis of *Leucosyris*, including synonymous *Arida* (Compositae: Astereae).** Phytoneuron 2012-98: 1–15. [*Arida* is submerged within *Leucosyris*]
- Semple, J.C. and J. Peirson. 2013. **A revised nomenclature for the *Solidago simplex* complex (Asteraceae: Astereae).** Phytoneuron 2013-41: 1-5.
- Short, E. & A. George. 2013. **A Primer of Botanical Latin with Vocabulary.** Cambridge University Press, New York. 304 pp.
- Simpson, B.B. 2013. ***Krameria bicolor*, the correct name for *Krameria grayi* (Krameriaceae).** Phytoneuron 2013-62: 1.
- Snow, N. and P.M. Peterson. 2012. **Nomenclatural notes on *Dinebra*, *Diplachne*, *Disakisperma*, and *Leptochloa* (Poaceae: Chloridoideae).** Phytoneuron 2012-71: 1–2. [nomenclatural corrections in *Leptochloa/Dinebra*]
- Soltis, D.E., C.J. Visger, & P.S. Soltis. 2014. **The polyploidy revolution then...and now: Stebbins revisited.** Amer. J. Bot. 101:1057-1078.
- Stace, C.A. 2010. **Classification by molecules: What's in it for field botanists?** Watsonia 28: 103-122. [here's a snippet from the abstract: "...It is concluded that, far from being remote and of interest only to professional molecular biologists, molecular systematics is highly relevant to the study and enjoyment of plants by all botanists, from molecular biologists to plant hunters, who still have much to contribute." (available here <http://archive.bsbi.org.uk/index.html>)]
- Stern, S.R., L. Bohs, & J. Keeling. 2014. **New species and combinations in *Solanum* section *Androceras* (Solanaceae).** J. Bot. Res. Inst. Texas 8(1): 1-7.
- Turner, B.L. 2012. **Taxonomy of the *Croton texensis* complex (Euphorbiaceae).** Phytologia 94(1):35-39. [recognition of var. *utahensis*]
- Turner, B.L. 2013. **Taxonomy of *Tecoma stans* (Bignoniaceae) in North America.** Phytologia 95 (3): 222-225.
- Turner, B.L. 2013. **Taxonomy of *Physaria purpurea* (Brassicaceae).** Phytologia 95(4): 321-323.
- Turner, B.L. 2013. **Recension of the genus *Fendlerella* (Hydrangeaceae).** Phytologia 95(4): 308-313.
- Turner, B.L. 2014. **Taxonomic overview of *Eustoma* (Gentianaceae).** Phytologia 96(1): 7-11.
- Zika, P.F. 2012. ***Juncus trilocularis* (Juncaceae), a new rush species from western North America.** Rhodora 114(959):309-329. [calls into question the occurrence of *J. brachyphyllus* in NM]



Miscellaneous Notes from the Editor

- ♦ If you enjoy all those exotic-sounding scientific names, then you might like this: http://la.wikipedia.org/wiki/Vicipaedia:Pagina_prima.
- ♦ Now that many articles are published digitally and online, you might be wondering about the “DOI” that is attached to their bibliographic citations. This from the web: “A digital object identifier (DOI) is a unique alphanumeric string assigned by a registration agency (the International DOI Foundation) to identify content and provide a persistent link to its location on the Internet. The publisher assigns a DOI when your article is published and made available electronically.” [<http://www.apastyle.org/learn/faqs/what-is-doi.aspx>]

Please note



Publication Information

“The New Mexico Botanist” is a newsletter to help make information about the flora of New Mexico readily available to the botanists of the state. The newsletter focuses on floristic and taxonomic information of interest to the botanists of the state, such as new state records, nomenclatural notes and explanations, brief taxonomic summaries, reports of inventories, information about threatened and endangered species, announcements and reports of meetings and conferences, and the like.

Numbers 1-59 were joint contributions from the Range Science Herbarium (NMCR) and the Cooperative Extension Service of New Mexico State University, and were published in a regular newsletter format with several articles per issue. They were issued first in a printed, paper version, and then in a pdf, digital version (but in the same newsletter format as the paper version).

Numbers 60 onward emanate solely from the editor, Kelly Allred, and continue in the digital format. But, rather than containing several articles, each issue now will be composed of a single main article, and will be published as the articles are submitted to the editor. An exception will be two often-appearing articles moderated by the editor: Botanical Literature of Interest, and Plant Distribution Reports; these may appear as accessory articles in any issue.

Submissions will be reviewed by the editor, who may ask the author(s) to make minor changes or to solicit further outside reviews or comments. Articles containing descriptions of taxonomic novelties or nomenclatural innovations will not be accepted (please send these to more formal botanical journals). Submissions may be sent to the editor at kallred@nmsu.edu.

You may be placed on the emailing list by sending your name and email address to kallred@nmsu.edu. An archive of all issues is available online at floraneomexicana.org.

— Kelly Allred, editor

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